

"On the Effects of Joining the Cervical Sympathetic Nerve with the Chorda Tympani." By J. N. LANGLEY, F.R.S., and H. K. ANDERSON, M.D. Received January 26,—Read February 4, 1904.

It is well known that the cervical sympathetic nerve and the chorda tympani have opposite actions upon the blood-vessels of the sub-maxillary gland, the former causing contraction of the vessels, and the latter, dilatation. Evidence has been given by one of us* that the chorda tympani if united with the cervical sympathetic, can in time make connection with the nerve cells of the superior cervical ganglion and become in part vaso-constrictor fibres. Our experiments have been directed to determine whether the cervical sympathetic if allowed an opportunity of becoming connected with the peripheral nerve cells in the course of the chorda tympani will in part change their function from vaso-constrictor to vaso-dilator. Two experiments were made on anaesthetised cats, both give similar results, but one was much more conclusive on the point at issue than the other, and here we shall speak of that only. The superior cervical ganglion was excised and the central end of the cervical sympathetic nerve was joined to the peripheral end of the lingual, which contains the chorda tympani fibres. After allowing time for union and regeneration of the nerves, the cervical sympathetic was stimulated; it caused prompt flushing of the sub-maxillary glands, and the effect was repeatedly obtained.

The experiment shows we think (1) that vaso-constrictor nerve fibres are capable of making connection with peripheral vaso-dilator nerve cells, and becoming vaso-dilator fibres, and (2) that whether contraction or inhibition of the unstriated muscle of the arteries occurs on nerve stimulation, depends upon the mode of nerve-ending of the post-ganglionic nerve fibre.

The cervical sympathetic gave a less scanty and more prolonged secretion than normal, so that some of its nerve fibres had become connected with the peripheral secretory nerve cells of the chorda tympani.

A full account will be published later in the '*Journal of Physiology.*'

* Langley, '*Journal of Physiology.*' 1898, vol. 23, p. 267.